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WENDEROTH, LIND & PONACK L.L.P.
2033 K. STREET, NW
SUITE 800
WASHINGTON, DC 20006

EXAMINER

CEHIC, KENAN

ART UNIT	PAPER NUMBER
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2616

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/527,024

Applicant(s)

WATANABE ET AL.

Examiner

Kenan Cehic

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 01/23/2007, 03/08/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the invalidation unit must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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3. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Objections

4. Claim 1-25 are objected to because of the following informalities:

For claim 1, claim limitation "an overload condition" in line 8 seems to refer back to "an overload condition" in claim 1 line 5. If this is true, it is suggested to change this limitation to --said overload condition --. Similar problem exist in claim 2 line 3, claim 3 line 3, claim 5 line 7, claim 8 line 13, claim 11 line 4, claim 12 line 3, claim 17, claim 18, claim 20, claim 22.

For claim 8, the claim limitation "the threshold" in line 14 is the first occurrence. It is suggested to applicant to change this limitation to --a threshold--.

For claim 11, the limitation "a recovery" line 9 seems to refer back to "a recovery" claim 11 line 5. It is suggested to change this limitation to --said recovery--. Similar problems exist in claim 12 line 6.

For claim 12, the limitation "an amount" line 7 seems to refer back to "an amount" claim 12 line 3. It is suggested to change this limitation to --said amount--. Similar problems exist in claim 14 line 14.

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Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 10, 13, 24 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 10 and 24, the claim limitation “the upper layers” has no antecedent basis.

Similar problem exist in claim 14 line 7.

For claim 13, the claim limitation “the interlayer logical connection” has no antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1-3,11,12 16-18 25 rejected under 35 U.S.C. 102(b) as being anticipated by Aweya et al. (US 2002/0188648), hereinafter Aweya.

For claim 1, Aweya discloses a network terminal apparatus (see section 0026 lines 4-8

“network devices”), comprising:

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a communication unit (see section 0092 lines 1-2 “network device queues”) operable to communicate (see section 0092 lines 1-2 “connections”) through a network (see section 0035 lines 1-2 “network traffic” and section 0026 lines 8-10 “network...large number of connections”);

a judgment unit (see section 0021 “packet drop routine”) operable to judge (see section 0065 “determination”) whether or not (see section 0066 “If $q < L$...packet is queued”) the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”) ; and

an invalidation unit (see section 0028 lines 1-4 “module 4”) operable to invalidate data (see section 0028 lines 3-4 “dropping packets”) received (see section 0059 line 1-3 “packet arrival at the queue”) by said communication unit (see section 0092 lines 1-2 “network device queues”) in the case where said judgment unit (see section 0021 “packet drop routine”) judges (see section 0062 lines 3-11 “drop probability...one out of every...packets should be dropped”) that the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”).

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For claim 2, Aweya discloses wherein said judgment unit (see section 0021 “packet drop routine”) is operable to judge (see section 0065 “determination”) the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) in the case where an amount of data (see section 0033 lines 1-4 “q(n)...actual queue size” and section 0051 lines 6-8 “queue size q(n) is measured”) received (see section 0059 line 1-3 “packet arrival at the queue”) per unit time (see section 0033 lines 1-4 “q(n)...actual queue size...at discrete time n, where $n=1\Delta t...$ ” and section 0059 line 1-3 “packet arrival at the queue”) from the network(see section 0035 lines 1-2 “network traffic” and section 0026 lines 8-10 “network...large number of connections” and section 0059 line 1-3 “packet arrival at the queue”) exceeds a threshold (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”).

For claim 3, Aweya discloses wherein said judgment unit (see section 0021 “packet drop routine”) is operable to judge (see section 0065 “determination”) the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) in the case where an amount of data (see section

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0033 lines 1-4 “q(n)...actual queue size” and section 0051 lines 6-8 “queue size q(n) is measured”) received (see section 0059 lines 1-3 “packet arrival at the queue”) in a receiving buffer (see section 0017 “buffer” and section 0007 lines 1-2 “buffer”) that temporarily holds (see section 0067 line 4 “queue the incoming packet”) the received data (see section 0059 lines 1-3 “packet arrival at the queue”) exceeds a threshold (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”).

For claim 11, Aweya discloses wherein said judgment unit includes:

a first detection unit (see section 0021 “packet drop routine”) operable to detect that the communication (see section 0092 lines 1-2 “connections” and section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”); and a second detection unit (see section 0019 “packet drop routine”) operable to detect a recovery (see section 0066 “If $q < L$..packet is queued”) from the overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”), and said network terminal apparatus (see section 0026 lines 4-8 “network devices”) further comprises a release unit operable to release the invalidation by said invalidation unit (see section 0019 “packet drop routine”) when a recovery (see section 0066 “If $q < L$..packet is queued”) from the overload condition (see section 0012 lines 1-3

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“queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”) is detected (see section 0066 “If $q < L$...packet is queued”).

For claim 12, Aweaya discloses a wherein said first detection unit (see section 0019 “packet drop routine”) is operable to detect that the communication (see section 0092 lines 1-2 “connections” and section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”) when an amount of data (see section 0033 lines 1-4 “ $q(n)$...actual queue size” and section 0051 lines 6-8 “queue size $q(n)$ is measured”) received per unit time (see section 0033 lines 1-4 “ $q(n)$...actual queue size...at discrete time n , where $n=1\Delta t$...” and section 0059 line 1-3 “packet arrival at the queue”) from the network (see section 0035 lines 1-2 “network traffic” and section 0026 lines 8-10 “network...large number of connections” and section 0059 line 1-3 “packet arrival at the queue”) exceeds a first threshold (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”), and said second detection unit (see section 0021 “packet drop routine”) is operable to detect a recovery (see section 0066 “If $q < L$...packet is queued”) from the overload condition (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”) is detected (see section 0066 “If $q < L$...packet is queued”) when an amount of the data (see

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section 0033 lines 1-4 “ $q(n)$...actual queue size” and section 0051 lines 6-8 “queue size $q(n)$ is measured”) received per unit time (see section 0033 lines 1-4 “ $q(n)$...actual queue size...at discrete time n , where $n=1\Delta t$...” and section 0059 line 1-3 “packet arrival at the queue”) by said communication unit (see section 0092 lines 1-2 “network device queues”) is below a second threshold (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-9 “No-drop threshold... L value is always computed for every new T value ”, see section 0033 lines 1-4 “ $T(n)$...determined in proportion...at discrete time n ...” and section 0067 “If q is not less than L ...Otherwise, queue the incoming packet”) , after (see section 0014 lines 4-6 “packet drop routine ...interval and section 0049 lines 8-9 “new L value is always computer for every new T value” and see section 0033 lines 1-4 “ $T(n)$...determined in proportion...at discrete time n ...” ; the L value changes) the overload condition is detected (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”) by the first detecting unit (see section 0021 “packet drop routine”).

For claim 16, Aweya discloses a communication (see section 0092 lines 1-2 “connections”) overload avoiding method (see section 0026 lines 4-10 “high link utilization... allows network to support a larger number of connections during congestion”) in a network terminal apparatus (see section 0026 lines 4-8 “network devices”) including a communication unit (see section 0092 lines 1-2 “network device queues”) operable to

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communicate (see section 0092 lines 1-2 “connections”) through a network (see section 0035 lines 1-2 “network traffic” and section 0026 lines 8-10 “network...large number of connections”), comprising:

judging (see section 0065 “determination”) whether (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) or not communication (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0066 “If $q < L$..incoming packet is queued”) is in an overload condition (section 0066 “If $q < L$..incoming packet is queued” and section 0067 lines 1-2 “If q is not less than L...then drop the incoming packets”) ; and

invalidating data (see section 0028 lines 3-4 “dropping packets”) received (see section 0059 line 1-3 “packet arrival at the queue”) by said communication unit (see section 0092 lines 1-2 “network device queues”) in the

case where the judgment (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) is that the communication (see section 0092 lines 1-2 “connections”) is in an overload

condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”).

For claim 17, Aweya teaches wherein, in said judging (see section 0065 “determination”), it is judged (see section 0065 “determination”) that the communication is in an

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overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) in the case where an amount (see section 0033 lines 1-4 “q(n)...actual queue size” and section 0051 lines 6-8 “queue size q(n) is measured”) of received data(see section 0059 line 1-3 “packet arrival at the queue”) per unit time (see section 0033 lines 1-4 “q(n)...actual queue size...at discrete time n, where $n=1\Delta t$...” and section 0059 line 1-3 “packet arrival at the queue”) from a network(see section 0035 lines 1-2 “network traffic” and section 0026 lines 8-10 “network...large number of connections” and section 0059 line 1-3 “packet arrival at the queue”) exceeds a threshold(see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”).

For claim 18, Aweya discloses wherein, in said judging (see section 0065 “determination”), it is judged (see section 0065 “determination”) that the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) in the case where an amount (see section 0033 lines 1-4 “q(n)...actual queue size” and section 0051 lines 6-8 “queue size q(n) is measured”) of received data (see section 0059 line 1-3 “packet arrival at the queue”) in a receiving buffer buffer (see section 0017 “buffer” and section 0007 lines 1-2 “buffer”)

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that temporarily holds (see section 0067 line 4 “queue the incoming packet”) the received data (see section 0059 lines 1-3 “packet arrival at the queue”) exceeds a threshold (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”).

For claim 25, Aweya et al discloses a program (see claim 15 lines 4-7 “instructions”) for avoiding a communication overload (see section 0026 lines 4-11 “network to support ...during congestion”) in a network terminal apparatus (see section 0029 lines 4-7 “network device”) including a communication unit (see section 0092 lines 1-2 “network device queues”) that communicates (see section 0092 lines 1-2 “connections”) through a network network (see section 0035 lines 1-2 “network traffic” and section 0026 lines 8-10 “network...large number of connections”), said program (see claim 15 lines 4-7 “instructions”) causing a computer (see claim 15 lines 4-7 “processor”) in the network terminal apparatus (see section 0029 lines 4-7 “network device”) to execute: judging (see section 0065 “determination”) whether (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) or not (see section 0066 “If $q < L$...packet is queued”) communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”); and invalidating data

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(section 0067 “If q is not less than L...then drop the incoming packets”) received (see section 0059 line 1-3 “packet arrival at the queue”) by said communication unit (see section 0092 lines 1-2 “network device queues”) in the case where the judgment is that condition is overloaded condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 4, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aweya et al. (US 2002/0188648) in view of Hiroyuki et al (EP 0905950).

For claim 4, Aweya teaches the claimed invention as described in paragraph 6.

Aweya et al is silent about:

As regarding claim 4, wherein said judgment unit is operable to compare the received data in communication processing corresponding to a data link layer with the threshold.

As regarding claim 19, wherein, in said judging, the received data in communication processing corresponding to a data link layer is judged using the threshold.

Hiroyuki et al from the same or similar field of endeavor discloses a communications system with the following features:

As regarding claim 4, Hiroyuki discloses wherein said judgment unit (see column 5 lines 23-24 "data link program") is operable to compare (see column 5 lines 25-35 "When the occupancy ...of bucket buffer...is below a threshold", "when the occupancy...below threshold T2") the received data (see column 5 lines 25-30 "occupancy...buffer") in communication processing (see column 3 lines 30-37 "communication...data

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communication terminal”) corresponding to a data link layer (see column 5 lines 23-24 “data link program”) with the threshold (see column 5 lines 25-35 “When the occupancy ...of bucket buffer...is below a threshold”, “when the occupancy...below threshold T2”). As regarding claim 19, Hiroyuki discloses wherein, in said judging compare (see column 5 lines 25-35 “When the occupancy ...of bucket buffer...is below a threshold”, “when the occupancy...below threshold T2”), the received data in communication processing (see column 3 lines 30-37 “communication...data communication terminal”) corresponding to a data link layer (see column 5 lines 23-24 “data link program”) is judged using the threshold compare (see column 5 lines 25-35 “When the occupancy ...of bucket buffer...is below a threshold”, “when the occupancy...below threshold T2”). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Aweya et al. by using the features, as taught by Hiroyuki et al, in order to provide ... (see column 3 lines 30-37).

8. Claim 5, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aweya et al. (US 2002/0188648) in view of Yang et al. (US 6425091), hereinafter Yang.

For claim 5, Aweya discloses the claimed invention is described in paragraph 6.

As regarding claim 5, Aweya additionally discloses wherein said judgment unit (see section 0021 “packet drop routine”) is operable to judge (see section 0065

“determination”) whether or not (see section 0066 “If $q < L$...packet is queued”) the

communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-

3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3

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“queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) using the determined threshold (section 0049 lines 1-9 “No-drop threshold...recommended value” and section 0067 “If q is not less than L...then drop the incoming packets”).

As regarding claim 20, Aweya additionally discloses wherein, in said judging (see section 0065 “determination”), it is judged (see section 0065 “determination”) whether or not (see section 0066 “If $q < L$...packet is queued”) the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) using the determined threshold threshold (section 0049 lines 1-9 “No-drop threshold...recommended value” and section 0067 “If q is not less than L...then drop the incoming packets”).

Aweya is silent about:

As regarding claim 5, a determination unit operable to dynamically determine the threshold depending on a load condition of a process other than communication in said network terminal apparatus

As regarding claim 20, dynamically determining the threshold depending on a load condition of a process other than communication in said network terminal apparatus,

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Yang et al. discloses a method for dealing with scheduling latency with the following features:

For claim 5, Brown discloses a determination unit (see Figure 3, 170) operable to dynamically determine (see column 3 lines 1-5 “adaptively adjust the threshold setting”) the threshold (see column 3 lines 1-5 “threshold setting”) depending on a load condition (see column 3 lines 1-5 “processor’s speed and loading”) of a process (see column 3 lines 1-5 “processor’s speed and loading”) other than communication (see column 3 lines 1-5 “processor’s speed and loading”) in said network terminal apparatus (see column 2 lines 19-121 “high-speed modem”).

For claim 20, Brown discloses dynamically determining (see column 3 lines 1-5 “adaptively adjust the threshold setting”) the threshold (see column 3 lines 1-5 “threshold setting”) depending on a load condition (see column 3 lines 1-5 “processor’s speed and loading”) of a process (see column 3 lines 1-5 “processor’s speed and loading”) other than communication (see column 3 lines 1-5 “processor’s speed and loading”) in said network terminal apparatus (see column 2 lines 19-121 “high-speed modem”).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Aweya et al by using the features, as taught by Yang et al, in order to provide ... (see column 2 lines 14-19).

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9. Claim 6, 7, 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aweya et al. (US 2002/0188648) in view of Yang et al. (US 6425091) as applied to claim 5 above, and further in view of Matter et al. (US 2003/0093628)

For claim 6 and 7, Aweya and Yang teach the claimed inventions as described in paragraph 8. As regarding claim 6 and 7 Aweya and Yang teach determination unit (see Figure 3, 170) operable to determine (see column 3 lines 1-5 “adaptively adjust the threshold setting”) the threshold (see column 3 lines 1-5 “threshold setting”) depending on a load condition (see column 3 lines 1-5 “processor’s speed and loading”) in said network terminal apparatus (see column 2 lines 19-121 “high-speed modem”).

Aweya and Yang are silent about the load condition in regard to:

A number of running application programs in said network terminal apparatus, as recited in claim 6.

The number of running application programs in said network terminal apparatus and (ii) a weight predetermined with respect to each application program, as recited in claim 7.

As regarding claim 21, a number of running application programs in said network terminal apparatus.

Matter et al from the same or similar field of endeavor teaches a communication device with the following features:

For claim 6, Matter et al discloses a number of running application programs (see section 0020 lines 10-17 “load of processordepend...number of applications be executed”) in

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said network terminal apparatus (see section 0020 lines 10-17 “processor 70” and Figure 1, 50, 70).

For claim 7, Matter et al discloses (i) the number of running application

Programs see section 0020 lines 10-17 “load of processor ..depend ..number of

applications be executed”) in said network terminal apparatus see section 0020 lines 10-

17 “processor 70” and Figure 1, 50, 70) and (ii) a weight predetermined (see section 0020

lines 1-17 “load processor ...depend...nature of instructions being exected”) with respect

to each application program (see section 0022 lines 3-5 “instructions associated

with...applications”).

For claim 21, Matter et al discloses a number of running application programs (see

section 0020 lines 10-17 “load of processordepend...number of applications be

executed”) in said network terminal apparatus (see section 0020 lines 10-17 “processor

70” and Figure 1, 50, 70).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify the system of Aweya et al. and Yang et al by using the features, as

taught by Matter et al, in order to provide ... (see section 0003 lines 3-5).

10. Claim 8-10, 13, 14, 22-24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aweya et al. (US 2002/0188648) in view of Teplitsky (US 6,678,283).

For claim 8 and 9, Aweya discloses the claimed invention is described in paragraph 6.

For claim 13, Aweya discloses the claimed invention is described in paragraph 6.

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For claim 8, Aweya additionally, discloses said judgment unit (see section 0021 “packet drop routine”) is operable to judge (see section 0065 “determination”) the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) in the case where an amount (see section 0033 lines 1-4 “q(n)...actual queue size” and section 0051 lines 6-8 “queue size q(n) is measured”) of the received data (see section 0059 lines 1-3 “packet arrival at the queue”) held in said receiving buffer (see section 0067 line 4 “queue the incoming packet”) exceeds the threshold (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”).

For claim 14, Aweya additionally discloses said first detection unit (see section 0021 “packet drop routine”) is operable to judge (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) whether or not (see section 0066 “If $q < L$...packet is queued”) the data received (see section 0092 lines 1-2 “connections” and section 0059 lines 1-3 “packet arrival at the queue”) by said first communication processing unit exceeds the first threshold (see section 0012 lines 1-3 “queue size q”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L...then drop the incoming packets”) and said second detection unit (see section

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0021 “packet drop routine”) is operable to check whether an amount (see section 0033 lines 1-4 “ $q(n)$...actual queue size” and section 0051 lines 6-8 “queue size $q(n)$ is measured”) of data received by the first communication processing unit is below (see section 0067 “If q is not less than L ...Otherwise queue incoming packet”) the second threshold (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-9 “No-drop threshold... L value is always computed for every new T value ”, see section 0033 lines 1-4 “ $T(n)$...(determined in proportion....at discrete time n ...” and section 0067 “If q is not less than L ...then drop the incoming packets”)

For claim 22, Aweya additionally, discloses in said judging (see section 0065 “determination”), it is judged (see section 0065 “determination”) that the communication (see section 0092 lines 1-2 “connections” and see section 0059 lines 1-3 “packet arrival at the queue”) is in an overload condition (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”) in the case where an amount (see section 0033 lines 1-4 “ $q(n)$...actual queue size” and section 0051 lines 6-8 “queue size $q(n)$ is measured”) of received data (see section 0059 lines 1-3 “packet arrival at the queue”) held in said receiving buffer (see section 0067 line 4 “queue the incoming packet”) exceeds the threshold (see section 0012 lines 1-3 “queue size q ”; section 0049 lines 1-5 “No-drop threshold” and section 0067 “If q is not less than L ...then drop the incoming packets”).

Aweya is silent about:

As regarding claim 8 and 22, a first communication processing unit operable to execute a communication processing corresponding to a physical layer and a data link layer; a receiving buffer that temporarily holds received data from the first communication processing unit; and a second communication processing unit operable to take the received data from the receiving buffer and execute communication processing for the received data corresponding to a network layer and the upper layers; as regarding claim 9 and 13, wherein said communication unit is operable to execute hierarchical communication processing, and said invalidation unit is operable to prohibit one of the interlayer logical connection.

As regarding claim 10 and 24, a first communication processing unit operable to execute communication processing corresponding to a physical layer and a data link layer; and a second communication processing unit corresponding to a network layer and the upper layers, and said invalidation unit is operable to prohibit said first communication processing unit from notifying said second communication processing unit of received data.

As regarding claim 23 ,wherein the communication unit is operable to execute hierarchical communication processing, and in said invalidating, one of the interlayer logical connection is prohibited.

Teplitsky from the same or similar field of endeavor discloses:

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As regarding claim 8 and 13, Teplitzky discloses a first communication processing unit (see Figure 2 140) operable to execute a communication processing (see column 4 lines 48-52 "Physical layer...LAN" and Figure 2, 104, 102 and column 3 lines 50-54 "communicate") corresponding to a physical layer (see Figure 2, 140 "Physical Layer") and a data link layer (see Figure 2, 140 "Data Link Layer"); a receiving buffer (see column 4 lines 53-54 "buffer") that temporarily holds (see column 4 lines 53-54 "stores them in a buffer") received data (see column 4 lines 48-52 "received by physical layer 151") from the first communication processing unit (see column 4 lines 53-56 "Physical Layer...stored them in a buffer"); and a second communication processing unit (see Figure 2, 143) operable to take (see column 4 lines 60-64 "transfer...packet to network layer 154") the received data (see column 4 lines 48-52 "received by physical layer 151") from the receiving buffer (see column 4 lines 53-54 "buffer") and execute communication processing (see column 5 lines 4-10 "network layer examines network packet forwarding") for the received data (see column 4 lines 60-64 "transfer...packet to network layer 154") corresponding to a network layer (see Figure 2 154) and the upper layers (see Figure 2, 154, 155, 156(1) and column 11 lines 15-16 "session layer protocol", column 7 lines 17-19 "application layer processing" and column 6 lines 20-25 "TCP").

As regarding claim 9, wherein said communication unit (see Figure 2, 100) is operable to execute hierarchical (see Figure 2, 151, 152, 154, 155 and column 2 lines 40-42 "network layer, transport layer,...application layer" and column 6 lines 20-25 "TCP") communication processing (see column 3 lines 50-54 "communicate") and said

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invalidation unit (see column 4 lines 56-62 “data link layer 152”) is operable to prohibit one of the interlayer logical connection (see column 4 lines 56-61 “frame is discarded”; it is not forwarded to network layer).

As regarding claim 10 and 24, Teplitsky discloses a first communication processing unit (see Figure 2 140) operable to execute communication processing (see column 4 lines 48-52 “Physical layer...LAN” and Figure 2, 104, 102 and column 3 lines 50-54 “communicate”) corresponding to a physical layer (see Figure 2, 140 “Physical Layer”) and a data link layer (see Figure 2, 140 “Data Link Layer”); and a second communication processing unit (see Figure 2 ,143) corresponding to a network layer (see Figure 2 154) and the upper layers (see Figure 2, 154, 155,156(1) and column 11 lines 15-16 “session layer protocol” , column 7 lines 17-19 “application layer processing” and column 6 lines 20-25 “TCP”), and

said invalidation unit (see column 4 lines 56-62 “data link layer 152”) is operable to prohibit (see column 4 lines 56-61 “frame is discarded”; it is not forwarded to network layer) said first communication processing unit (see Figure 2 140) from notifying (see column 4 lines 56-61 “frame is discarded”; no notification is given) said second communication processing unit (see Figure 2 ,143) of received data (see column 4 lines 48-52 “received by physical layer 151”).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Aweya et al by using the features, as taught by Teplitsky, in order to provide ... (see section column 1 lines 54-64).

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As regarding claim 14, Teplitsky discloses a first communication processing unit (see Figure 2 140) operable to execute communication processing (see column 4 lines 48-52 "Physical layer...LAN" and Figure 2, 104, 102 and column 3 lines 50-54 "communicate") corresponding to a physical layer (see Figure 2, 140 "Physical Layer") and a data link layer (see Figure 2, 140 "Data Link Layer"); and a second communication processing unit (see Figure 2 ,143) corresponding to a network layer (see Figure 2 154) and the upper layers (see Figure 2, 154, 155,156(1) and column 11 lines 15-16 "session layer protocol" , column 7 lines 17-19 "application layer processing" and column 6 lines 20-25 "TCP"), , said invalidation unit (see column 4 lines 56-62 "data link layer 152") is operable to prohibit (see column 4 lines 56-61 "frame is discarded"; it is not forwarded to network layer) said first communication processing unit (see Figure 2 140) from notifying (see column 4 lines 56-61 "frame is discarded"; no notification is given) said second communication processing unit (see Figure 2 ,143) of the received data(see column 4 lines 48-52 "received by physical layer 151").

As regarding claim 22, Teplitsky discloses wherein a first communication processing unit (see Figure 2 140) operable to execute communication processing (see column 4 lines 48-52 "Physical layer...LAN" and Figure 2, 104, 102 and column 3 lines 50-54 "communicate") corresponding to a physical layer (see Figure 2, 140 "Physical Layer") and a data link layer (see Figure 2, 140 "Data Link Layer"), a receiving buffer (see column 4 lines 53-54 "buffer") that holds (see column 4 lines 53-54 "stores them in a

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buffer”) data received (see column 4 lines 48-52 “received by physical layer 151”) from the first communication processing unit (see column 4 lines 53-56 “Physical Layer...stored them in a buffer”) temporarily (see column 4 lines 53-54 “buffer”) and a second communication processing unit (see Figure 2, 143) operable to take (see column 4 lines 60-64 “transfer...packet to network layer 154”) the received data (see column 4 lines 48-52 “received by physical layer 151”) from the receiving buffer (see column 4 lines 53-54 “buffer”) and execute communication processing (see column 5 lines 4-10 “network layer examines network packet forwarding”) corresponding to a network layer (see Figure 2 154) and the upper layers (see Figure 2, 154, 155, 156(1) and column 11 lines 15-16 “session layer protocol”, column 7 lines 17-19 “application layer processing” and column 6 lines 20-25 “TCP”).

As regarding claim 22, Teplitsky discloses wherein the communication unit (see Figure 2, 100) is operable to execute hierarchical (see Figure 2, 151, 152, 154, 155 and column 2 lines 40-42 “network layer, transport layer,...application layer” and column 6 lines 20-25 “TCP”) communication processing (see column 3 lines 50-54 “communicate”), and in said invalidating (see column 4 lines 56-61 “frame is discarded”; it is not forwarded to network layer), one of the interlayer logical connection is prohibited (see column 4 lines 56-61 “frame is discarded”; it is not forwarded to network layer).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Aweya et al. by using the features, as taught by Teplitsky, in order to provide ... (see column 1 lines 48-63).

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aweya et al. (US 2002/0188648) in view of Teplitsky (US 6,678,283), as applied to claim 14 above, further in view of Dighe et al (5,717,691).

For claim 15, Aweya and Teplitsky teach the claimed invention as described in paragraph 10.

Aweya and Teplitsky are silent about:

As regarding claim 15, wherein said first communication processing unit is operable to notify said second communication processing unit of received data by an interrupt signal, said invalidation unit is operable to prohibit the notification by masking the interrupt signal, and said release unit is operable to release the masking of the interrupt signal.

Dighe et al discloses a communications platform with the features:

As regarding claim 15, wherein said first communication processing unit (see column 11 lines 3-11 "AAL engine") is operable to notify (see column 11 lines 3-15 "cell was received...AAL engine... will interrupt") said second communication processing unit (see column 11 lines 3-11 "CP") of received data (see column 11 lines 3-15 "cell was received...") by an interrupt signal (see column 11 lines 3-15 "cell was received...AAL engine... will interrupt"), said invalidation unit (see column 11 lines 3-11 "AAL engine") is operable to prohibit (see column 11 lines 6-10 "AAL engine does not interrupt the CP on reception of all...cells") the notification by masking the

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interrupt signal (see column 11 lines 6-10 "CP should be interrupted is all masked"), and said release unit (see column 11 lines 3-11 "AAL engine") is operable to release (see column 11 lines 6-10 "interrupt the CP...only a settable few") the masking of the interrupt signal (see column 11 lines 6-10 "CP should be interrupted is all masked").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Aweya et al. and Teplitsky by using the features, as taught by Dighe et al, in order to provide ... (see column 1 lines 60-66).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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US-6,438,551 B1	08-2002	Holmskar, Stig
US-6,789,203 B1	09-2004	Belissent, Jacques E.

The above are recited to show methods of buffer management.

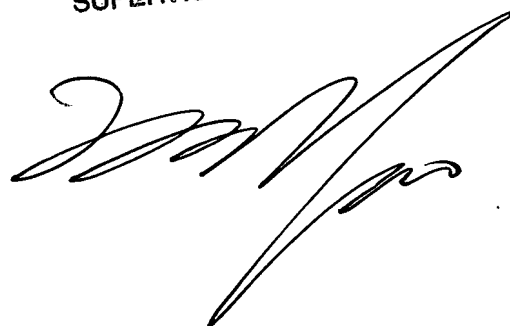
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenan Cehic whose telephone number is (571) 270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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KWANG BIN YAO
SUPERVISORY PATENT EXAMINER

KC

A handwritten signature in black ink, appearing to be 'Kwang Bin Yao', written in a cursive style.